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Heart Failure

PRESERVATION OF LEFT VENTRICULAR EJECTION FRACTION WITH STATINS DURING RECEIPT OF ANTHRACYCLINE BASED CHEMOTHERAPY

ACC Moderated Poster Contributions

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Background: Anthracycline administration is associated with deterioration in left ventricular ejection fraction (LVEF). We sought to determine whether the co-administration of statin therapy would be associated with an attenuation of LVEF deterioration among those receiving anthracyclines.

Methods: In 50 participants (33 women:17 men; aged 48 ± 14 years), we performed blinded cardiovascular magnetic resonance (CMR) measurements of left ventricular volumes and LVEF prior to and 6 months after initiation of anthracycline-based chemotherapy for patients with breast cancer, leukemia, or lymphoma. 13 individuals received statin therapy for guideline-based indications and 37 did not receive a statin. Statin recipients received 38 ± 31 mg (range 5 mg to 80 mg) of atorvastatin (n=5) or simvastatin (n=8). The mean cumulative anthracycline dose and anthracycline equivalent doses ranged from 30 to 450 mg/m²; 193 ± 95 mg/m² and 201 ± 99 mg/m² in statin and non-statin users, respectively.

Results: Those receiving statins were older and exhibited more diabetes (DM), hypertension (HTN), hyperlipidemia (HLD) relative to those not receiving statins. For the 13 individuals receiving statins, LVEF was $57 \pm 5\%$ at baseline and declined to $54 \pm 5\%$ at 6 months ($p=0.15$). For those not receiving a statin, LVEF decreased from $57 \pm 9\%$ to $52 \pm 7\%$ at 6 months ($p=0.003$). In a multivariable model accounting for age, gender, comorbidities (DM, HTN, HLD), and the dose of anthracycline, the LVEF decline after statins was (-2%) compared to non-statin users (-5%) ($p=0.0005$). Moreover, in those receiving 40 to 80 mg/day of a statin, there was a 2% increase in LVEF; whereas there was a 3% decrease in LVEF after low (10-20 mg/day) dose statins, or a 5% decrease in those not receiving a statin ($p<0.03$).

Conclusion: These data highlight that individuals receiving statin therapy for other guideline-based indications may incur protection against deterioration in LVEF upon receipt of anthracycline-based chemotherapy.